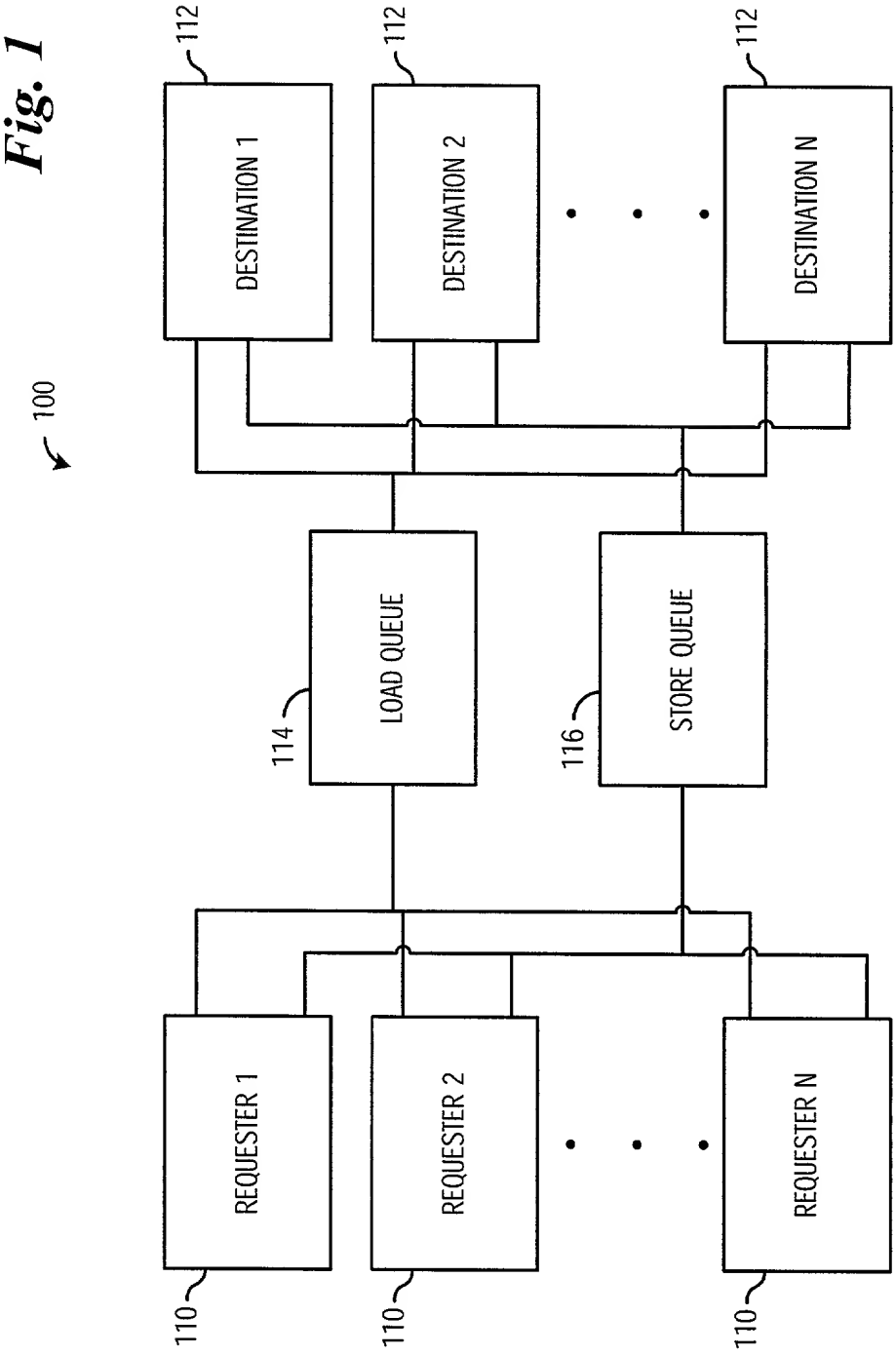
ET420197869US

Fig. 1



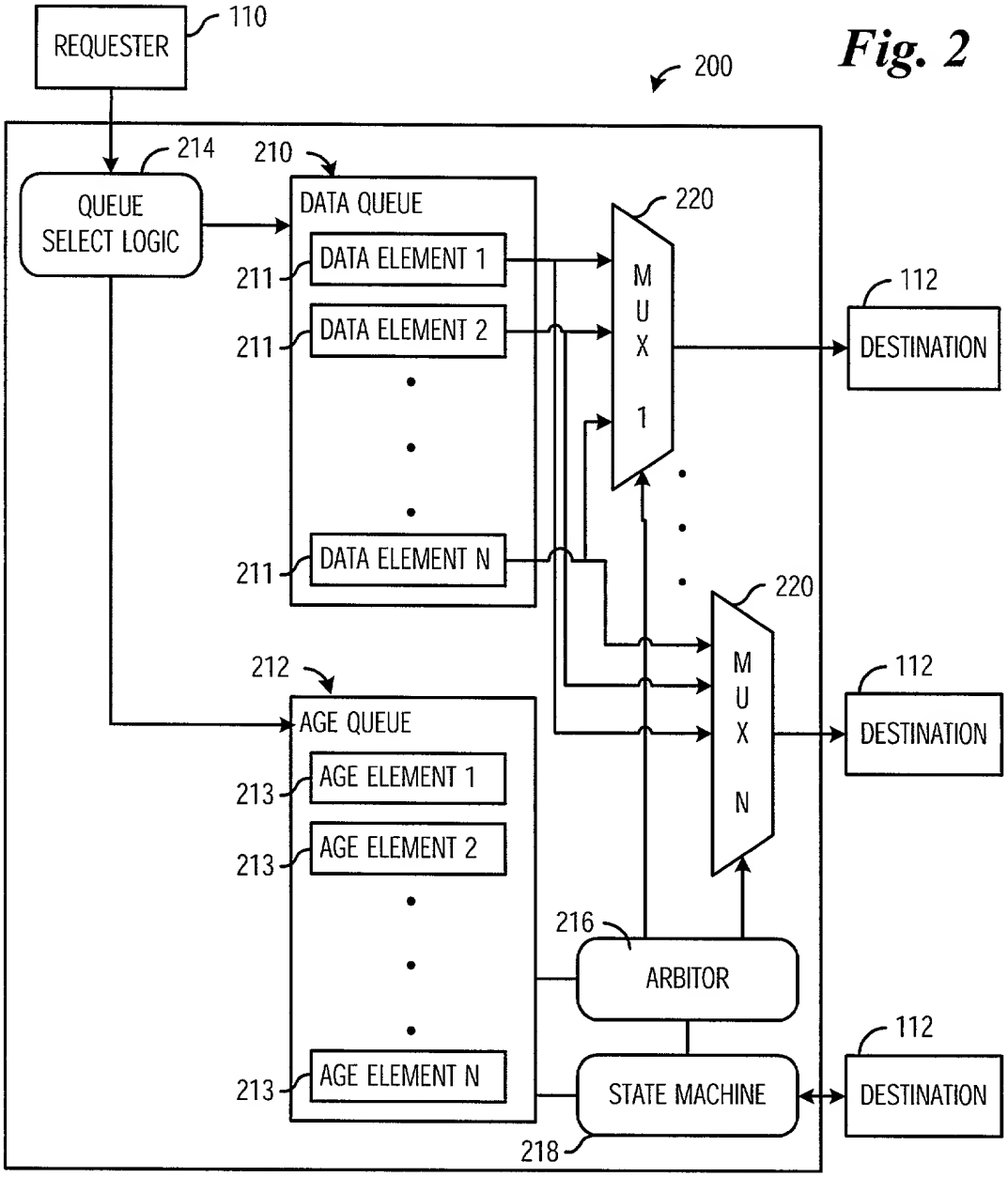
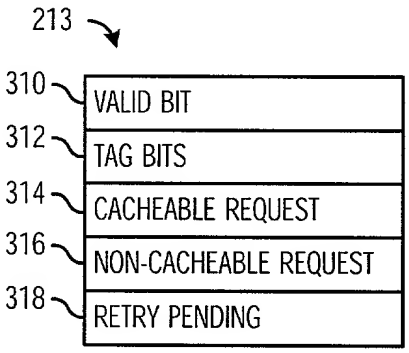

REQUESTER
110
200
214
QUEUE SELECT LOGIC
210
DATA QUEUE
DATA ELEMENT 1
DATA ELEMENT 2
DATA ELEMENT N
211
211
211
220
M U X 1
112
DESTINATION
220
M U X N
112
DESTINATION
212
AGE QUEUE
AGE ELEMENT 1
AGE ELEMENT 2
AGE ELEMENT N
213
213
213
216
ARBITOR
STATE MACHINE
218
112
DESTINATION

Fig. 2

Fig. 3


213
310
VALID BIT
312
TAG BITS
314
CACHEABLE REQUEST
316
NON-CACHEABLE REQUEST
318
RETRY PENDING

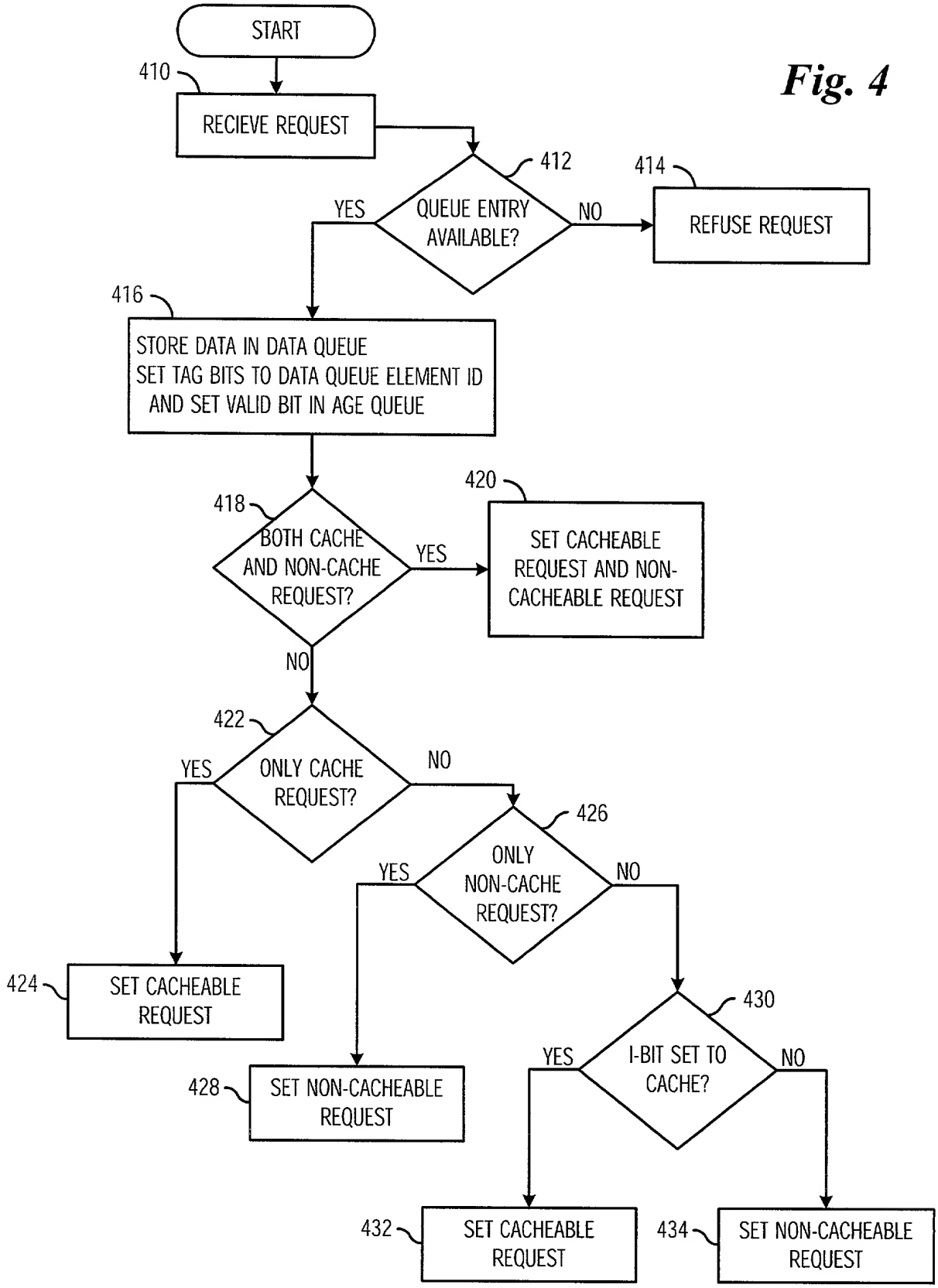

START
410
RECIEVE REQUEST
412
QUEUE ENTRY AVAILABLE?
YES
NO
414
REFUSE REQUEST
416
STORE DATA IN DATA QUEUE
SET TAG BITS TO DATA QUEUE ELEMENT ID
AND SET VALID BIT IN AGE QUEUE
418
BOTH CACHE AND NON-CACHE REQUEST?
YES
420
SET CACHEABLE REQUEST AND NON-CACHEABLE REQUEST
NO
422
ONLY CACHE REQUEST?
YES
NO
424
SET CACHEABLE REQUEST
426
ONLY NON-CACHE REQUEST?
YES
NO
428
SET NON-CACHEABLE REQUEST
430
I-BIT SET TO CACHE?
YES
NO
432
SET CACHEABLE REQUEST
434
SET NON-CACHEABLE REQUEST

Fig. 4

Fig. 5

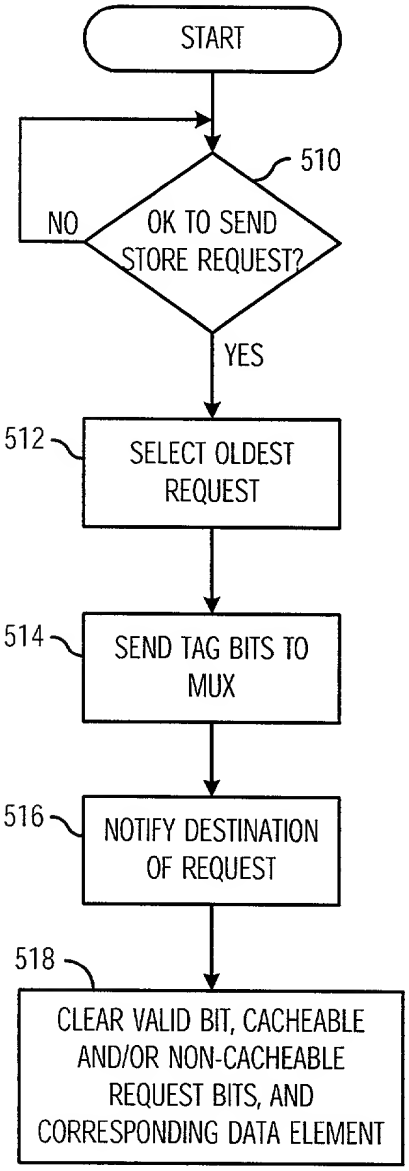

START
510
NO
OK TO SEND STORE REQUEST?
YES
512
SELECT OLDEST REQUEST
514
SEND TAG BITS TO MUX
516
NOTIFY DESTINATION OF REQUEST
518
CLEAR VALID BIT, CACHEABLE AND/OR NON-CACHEABLE REQUEST BITS, AND CORRESPONDING DATA ELEMENT

Fig. 6

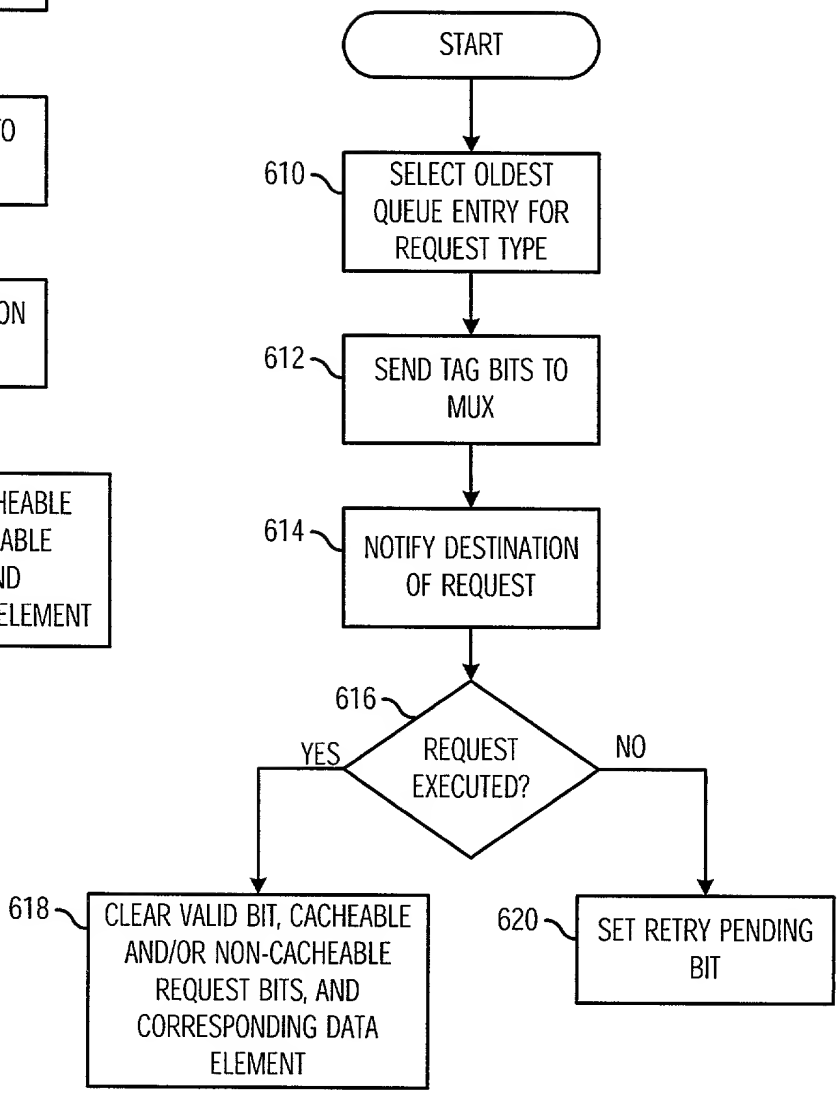
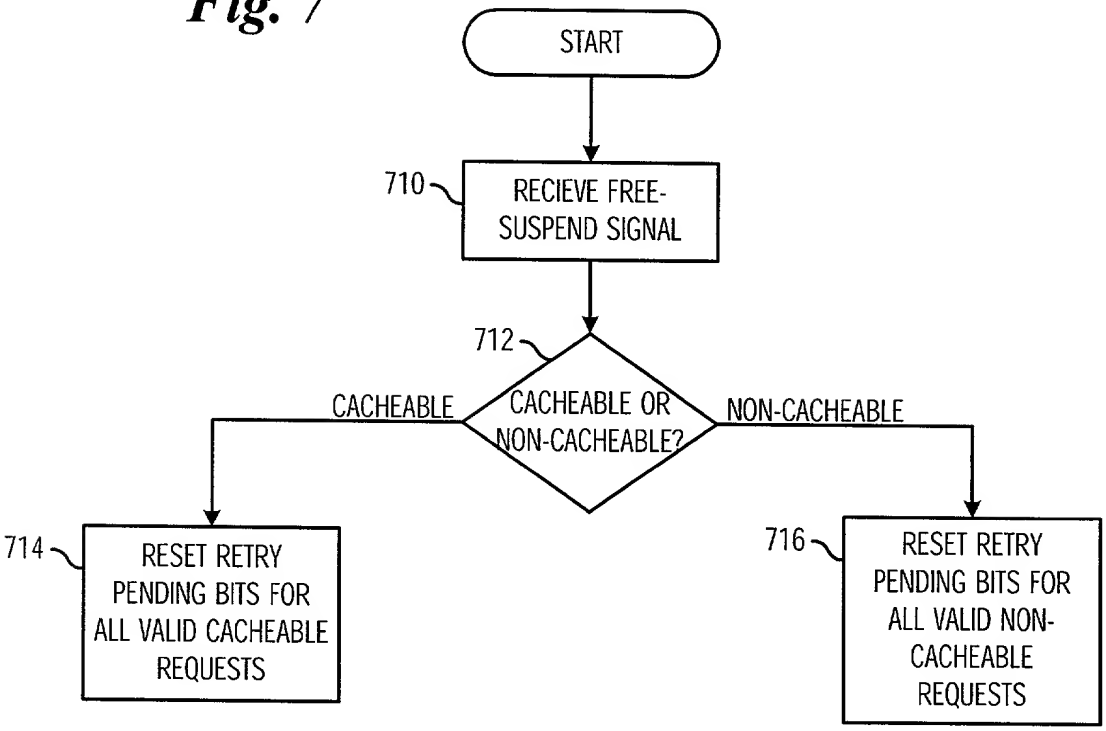

START
610
SELECT OLDEST QUEUE ENTRY FOR REQUEST TYPE
612
SEND TAG BITS TO MUX
614
NOTIFY DESTINATION OF REQUEST
616
YES
REQUEST EXECUTED?
NO
618
CLEAR VALID BIT, CACHEABLE AND/OR NON-CACHEABLE REQUEST BITS, AND CORRESPONDING DATA ELEMENT
620
SET RETRY PENDING BIT

Fig. 7


START
710
RECIEVE FREE-SUSPEND SIGNAL
712
CACHEABLE OR NON-CACHEABLE?
CACHEABLE
NON-CACHEABLE
714
RESET RETRY PENDING BITS FOR ALL VALID CACHEABLE REQUESTS
716
RESET RETRY PENDING BITS FOR ALL VALID NON-CACHEABLE REQUESTS